

Your task is to carry out an investigation to see how the amplitude, A , of vertical oscillation of a mass hanging from two springs in series varies with time, t .

Time allowed: You are **advised** to spend 15 minutes to answer parts (a) and (b) during which time you are allowed to set up and use the equipment for trial readings.

You are provided with the following equipment

500g hanger and masses
2 linked springs
pointer
split cork
2 clamps and stands
G-clamps
Metre rule
Stopwatch
Sticky tape

- (a) The relationship between the amplitude of an oscillation, A , and the time t , can be expressed by:

$$A = A_0 e^{-\lambda t}$$

where A_0 = initial amplitude
and λ = an unknown constant

Rearrange this equation in the form of $y = mx + c$ and explain which graph you will draw to confirm this relationship and also determine the unknown constant λ . [2]

*If you are unsure what to do, ask your supervisor for information sheet 1.
You will be deducted 2 marks for this information.*

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For supervisor's use only [Tick one box (✓)]	
Yes information sheet needed	<input type="checkbox"/>
No information sheet not needed	<input type="checkbox"/>